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CONSUMERS NEED MORE RELIABLE AUTOMOBILE FUEL ECONOMY DATA.(U)
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BY THE U.S. GENERAL ACCOUNTING OFFICE

21) **Report To The Chairman, Committee
On Energy And Commerce,
House Of Representatives.**

6) **Consumers Need More Reliable
Automobile Fuel Economy Data.**

Every new automobile sold in the United States has a label showing its tested fuel economy. In addition, all fuel economy test results are published annually to encourage the production and purchase of more fuel-efficient automobiles. Consumers are skeptical, however, because their on-road experience often falls far short of the tested mileage figures.

GAO believes that the Environmental Protection Agency needs to address additional concerns before it goes ahead with proposed revisions to the fuel economy labeling program. It should

- require that tested vehicles use tires, lubricants, and other products comparable to those likely to be used in actual vehicles sold;
- establish a method for collecting on-road fuel economy data; and
- provide consumers with information on the uses and limitations of proposed adjustment factors to the tested fuel economy figures.

The Federal Trade Commission also should revise its fuel economy advertising guide to include the adjusted fuel economy values.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

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The Honorable John D. Dingell
Chairman, Committee on Energy
and Commerce
House of Representatives

Dear Mr. Chairman:

At your request, we reviewed the fuel economy labeling program administered by the Environmental Protection Agency, in cooperation with the Departments of Energy and Transportation and the Federal Trade Commission. This report includes recommendations to the Administrator, Environmental Protection Agency, and the Chairman, Federal Trade Commission, to help the program meet its objectives.

As requested by the committee, we did not obtain official comments from the Federal agencies discussed in the report. We will be in touch with your office regarding the date of subsequent distribution of this report to the Federal agencies involved as well as to other interested parties.

Sincerely yours,

Milton J. Rowland

Acting Comptroller General
of the United States

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COMPTROLLER GENERAL'S
REPORT TO THE COMMITTEE
ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

CONSUMERS NEED MORE
RELIABLE AUTOMOBILE
FUEL ECONOMY DATA

D I G E S T

Since 1976, purchasers of new automobiles in the United States have relied on fuel economy test data to help choose fuel-efficient vehicles. Under a fuel economy labeling program administered by the Environmental Protection Agency (EPA) in cooperation with the Departments of Transportation and Energy and the Federal Trade Commission, every automobile manufactured for sale and use in the United States is required to display a label showing its tested fuel economy, its estimated annual fuel costs, and the fuel economy range of comparable vehicles. A Gas Mileage Guide, containing data on all automobile fuel economy test results, is published annually. (See p. 2.)

Since the program began, there have been complaints of discrepancies between EPA's fuel economy test results and consumers' reported on-road fuel economy. For combined city/highway driving, recent statistics show that the discrepancies varied from 12 percent in 1975 to 20 percent in 1977 to 16 percent in 1979. Any projected fuel savings that have not recognized these discrepancies are therefore overstated. (See p. 7.)

This report was prepared in response to a request from the House Committee on Energy and Commerce, which asked GAO to determine why these discrepancies exist, whether better measures of fuel economy can be developed, and whether better ways of disseminating this information to consumers can be devised. (See p. 5.)

WHY THE DISCREPANCIES OCCUR

Differences between the EPA figures and drivers' on-road mileage figures result from many factors, including variances in travel environments, driver habits, vehicle conditions, and design changes. (See p. 9.) Add to these factors discrepancies that are caused either by the test procedures themselves or by automobile advertising (which the Federal Trade Commission does not prohibit from using other fuel economy values in addition to those on the label and in the Gas Mileage

Guide), and consumers become increasingly skeptical of the program. (See pp. 13 and 14.)

In establishing the fuel economy labeling program, the Congress recognized that costs could be minimized by making fuel economy tests a part of the existing emissions certification tests already being conducted by EPA under the Clean Air Act. (See pp. 1 and 3.)

The fuel economy test uses a dynamometer (a mechanical device that tests automobiles in a stationary position) rather than a road or track test area and measures fuel economy by calculating the amount of carbon ejected through the exhaust system during the test. A city-test cycle and a highway-test cycle are used to simulate on-road experience. Since 1979, EPA has presented only the city-test values on the labels and in the Gas Mileage Guide because those values are closer to the reported on-road fuel economy. (See pp. 3 and 4.)

The test was designed to represent driving at a temperature of 75 degrees Fahrenheit over a straight, level road with no wind resistance. The test procedure also allows manufacturers to assign general label values to a group of similar model types, to fine tune the engine, and to use high-quality lubricants and tires to improve the test results. Such atypical conditions have caused the fuel economy test results to be inflated. (See pp. 3 and 12.)

WHAT IS BEING DONE TO REDUCE DISCREPANCIES

EPA proposes to revise the fuel economy labeling program by, among other things, adjusting the test values to better represent the gas mileage consumers are obtaining on the road. GAO believes that such action is necessary, but it has some concern over the revised program's chance for success without additional changes.

Fuel economy test vehicles should be using lubricants and tires, for example, that are comparable to those generally used on automobiles sold to the public. Manufacturers, however, are currently permitted to use higher quality products in their test vehicles. (See p. 13.) Further, an adjusted program should require that (1) data be continually available to reflect current on-road experience, (2) consumers be properly informed of the

adjustments, and (3) advertising be consistent with the program's adjusted fuel economy label and Gas Mileage Guide values. (See p. 16.)

EPA's proposal to improve the fuel economy labeling program includes a plan to apply an adjustment factor to each automobile label value that would account for the average discrepancy between the fuel economy test results and the consumers' on-road experience. However, EPA has not proposed a method for collecting the necessary on-road fuel economy data. (See p. 17.)

Although manufacturers generally support this plan, some are concerned over how the adjustment factor should be calculated. Domestic manufacturers, with larger discrepancies, favor an industrywide adjustment factor while foreign manufacturers, with smaller discrepancies, favor an adjustment factor for each manufacturer to account for individual differences. (See p. 18.)

Recent studies comparing the fuel economy test results with on-road experience indicate that separate adjustment factors may be required to reflect new automobile technologies. However, more research data is needed before any definite conclusions can be drawn on how changing technologies could affect the adjustment factors. (See p. 22.) Further, if EPA's proposed revisions to the fuel economy labeling program become effective, education programs will be needed to adequately inform consumers of the program adjustments and limitations. (See p. 24.) Also, a revised automobile advertising guide, as established under the Federal Trade Commission, will be needed. (See p. 23.)

RECOMMENDATIONS

The Administrator, Environmental Protection Agency, should:

- Require that tested vehicles use only products (i.e., lubricants and tires) comparable to those used on the majority of vehicles in production. (See p. 15.)
- Establish a method for collecting on-road fuel economy data so that future label and Gas Mileage Guide adjustment factors are current and accurate. (See p. 25.)

--Provide consumers with information on the uses and limitations of the adjusted fuel economy values. (See p. 25.).

Further, GAO recommends that the Chairman, Federal Trade Commission, revise the fuel economy advertising guide to include the adjusted fuel economy label and Gas Mileage Guide values, once they are determined by EPA. (See p. 26.)

AGENCY COMMENTS

As requested by the House Committee on Energy and Commerce, GAO did not request official comments from the Federal agencies discussed in this report.

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ABBREVIATIONS

DOE	Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
FTC	Federal Trade Commission
GAO	General Accounting Office
mpg	miles per gallon
NHTSA	National Highway Traffic Safety Administration
OMB	Office of Management and Budget

CHAPTER 1

INTRODUCTION

For nearly a decade, the Federal Government has been implementing programs to make automobiles more fuel efficient and consumers more fuel conscious. In President Nixon's 1973 energy message to the Congress, he spoke of a need to conserve available energy resources and limit future energy demands, and he gave the Environmental Protection Agency (EPA) the responsibility to inform the public as to the fuel economy ^{1/} features of automobiles. This report, requested by the House Committee on Energy and Commerce, discusses concerns over fuel economy that have surfaced since that action was taken.

ESTABLISHING A VOLUNTARY FUEL ECONOMY LABELING PROGRAM

On August 27, 1973, EPA responded to the President's energy message by issuing procedures for establishing a voluntary fuel economy labeling program for new automobiles. The program was designed to (1) increase public awareness of factors that affect fuel economy, (2) influence manufacturers to produce automobiles with improved fuel economy, and (3) influence consumers to buy more fuel-efficient automobiles.

The voluntary program was scheduled for implementation during the 1974 model year, at which time every automobile manufacturer was encouraged to attach a fuel economy label to each new automobile produced that would provide, by vehicle weight,

- a range of miles per gallon (mpg) attained from federally controlled fuel economy tests,
- an average mpg attained from the tests, and
- an estimated annual fuel operating cost.

Fuel economy ratings for the voluntary program were to be determined by EPA and the manufacturers, in accordance with Federal emissions test procedures conducted under section 206 of the Clean Air Act (42 U.S.C. 7525.)

Although automobile manufacturers did not fully implement the labeling program until the 1975 model year, EPA did publish fuel economy test results for many 1974 model-year vehicles. EPA's "Gas Mileage Guide for Car Buyers," dated February 1974, listed the fuel economy of 486 automobiles and trucks. Those

^{1/}The average number of miles traveled for each gallon of fuel consumed.

fuel economy results were criticized by the manufacturers, however, because the procedures under which the vehicles were tested simulated only city-type driving and were not indicative of highway-type driving. According to EPA, testing at that time for city-type driving only caused the fuel economy results to understate, by about 15 percent, the gas mileage drivers were actually getting on the road.

A Department of Transportation (DOT) study released in January 1974 concluded that city driving represented only 55 percent of annual automobile travel. Subsequently, EPA developed a simulated highway-type driving test to account for the remaining 45 percent and modified the 1975 fuel economy label format and Gas Mileage Guide to include both the city- and highway-type driving results.

In conjunction with the voluntary fuel economy labeling program, manufacturers began to dramatically increase the use of fuel economy information in their advertising. Unfortunately, their fuel economy advertising was based on additional tests conducted by manufacturers that were not always comparable with the Federal test procedures or with other manufacturers' tests. Some tests, for example, were conducted on Interstate highways at or near the speed limit while other tests were conducted on test tracks at varying speeds. General confusion resulted when consumers tried to compare one advertising claim against another. That confusion firmly supported the need for a mandatory, rather than voluntary, fuel economy labeling program to accurately inform the public of the comparable fuel economy features of automobiles.

ESTABLISHING A MANDATORY FUEL ECONOMY LABELING PROGRAM

On December 22, 1975, the Congress amended the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 1901 et seq.) to establish a mandatory fuel economy labeling program. The act, as amended, requires that every automobile manufactured for sale and use in the United States after model year 1976 have a label prominently affixed indicating the automobile's fuel economy, its estimated annual fuel costs, and the range of fuel economy for comparable automobiles. The act also requires that a "simple and readily understandable booklet" be compiled, prepared, published, and distributed that contains data on automobiles' fuel economy test results. This booklet, called the Gas Mileage Guide, is published annually.

The mandatory fuel economy labeling program functions under four Federal agencies--EPA, the Department of Energy (DOE), DOT, and the Federal Trade Commission (FTC). EPA develops fuel economy test procedures and regulations for the labeling program, tests automobiles for the labeling program and the Gas Mileage Guide, and compiles and prepares the information for the Gas Mileage Guide. DOE publishes and distributes the Gas Mileage Guide. The National Highway Traffic Safety Administration (NHTSA),

within DOT, enforces the requirement that the Gas Mileage Guide be made available in every new-car dealer's showroom. FTC enforces the labeling regulations and monitors manufacturers' fuel economy advertising claims.

As stated in the authorizing legislation, the mandatory fuel economy tests, to the extent practical, are to be conducted in accordance with EPA's emissions certification tests, as they had been under the voluntary program. The Congress recognized that costs could be minimized if EPA conducted the tests in this manner.

To obtain comparable results for all vehicles, EPA's fuel economy tests are conducted under controlled laboratory conditions using a dynamometer 1/ rather than a road or track test area. Also, a prototype 2/, rather than a production 3/ automobile, is generally used. Fuel economy is not measured as a consumer would measure it. Instead, the test car's exhaust gas is collected in a clear plastic bag and then, through a "carbon balance method of calculation," the exact amount of carbon emitted from the exhaust gas is measured. Since the amount of carbon contained in a gallon of gasoline is known, it is possible to also calculate the amount of fuel consumed during the test.

The basic test was designed to represent driving in southern California at a temperature of about 75 degrees Fahrenheit. The test simulates a trip on a straight, level road with no wind. Although such atypical test conditions have generally caused the fuel economy test results to be inflated, they were nevertheless believed to produce comparable results for the consumer.

As previously discussed, EPA's fuel economy tests initially consisted of only a city-driving test cycle. Later, EPA developed a highway-driving test cycle that it included in its 1975 fuel economy labeling program. Both test procedures were subsequently made a part of the mandatory fuel economy labeling program and are described below.

The city-test cycle

A complete city-test cycle begins by preconditioning each automobile for at least 12 hours before it is placed on the dynamometer. During this preconditioning, or "soak" period, the

1/A mechanical device that allows an automobile to be tested in a stationary position with its drive wheels placed on revolving rollers.

2/A vehicle that represents the production vehicle as closely as possible within the constraints of the manufacturer.

3/A vehicle that comes off the manufacturer's assembly line.

surrounding temperature is maintained at a range of 68 to 86 degrees Fahrenheit and the engine is not started. Next, the automobile is driven onto the dynamometer where sampling equipment is attached to the exhaust system so that the amount of carbon can be calculated during a 7.5-mile simulated city-driving cycle. A test driver follows a preprinted speed chart throughout the cycle, and the test speed must not deviate from the chart by more than 2 miles an hour for more than 2 seconds.

Once the 7.5-mile cycle is completed, the automobile engine is turned off for a maximum of 10 minutes, then restarted. At that time the test driver repeats the first 3.6 miles of the cycle, making a total distance driven of 11.1 miles. Twenty-one stops and starts are recorded, and a maximum speed of 56 miles an hour is reached. The average speed maintained during the entire 11.1-mile city-driving cycle is 21 miles an hour.

The highway-test cycle

The highway-test cycle consists of one test of 10.2 miles with no intermediate stops. The average speed maintained is 48.6 miles an hour, but during the cycle a maximum speed of 60 miles an hour is reached. If the highway test is not conducted within 3 hours of the city test, the automobile is preconditioned by being driven over one 7.5-mile city-test cycle.

DISSEMINATING FUEL ECONOMY TEST RESULTS

The legislation provided no specific guidance to EPA on which test cycles (city or highway) should be included in the labeling program. Therefore, disseminating fuel economy values to the consumer by way of the label and Gas Mileage Guide can be administratively changed from year to year if EPA deems it necessary.

Since the mandatory fuel economy labeling program began, how the information has been presented on the label and in the Guide has changed dramatically. For the first 2 years of the mandatory program--model years 1977 and 1978--the label and Gas Mileage Guide contained a city-test cycle value, a highway-test cycle value, and a combined value. (The latter value is one calculated on the basis of a 55-percent city cycle and a 45-percent highway cycle.) Beginning with model year 1979, the label and Gas Mileage Guide were revised to present only the city-test cycle value, which EPA refers to as the "estimated mpg." According to EPA, this change was made because recent studies have shown that the city-test results more accurately represent actual on-road fuel economy than either the highway- or combined-test results.

Currently, EPA is proposing to again change the fuel economy labeling and Gas Mileage Guide format. This proposal is described in detail in chapter 3.

OBJECTIVES, SCOPE, AND METHODOLOGY

The objective of our review was to address three basic concerns of the House Committee on Energy and Commerce:

- (1) What is the discrepancy between the actual on-road gas mileage and the EPA fuel economy ratings for automobiles?
- (2) Will better fuel economy measures be developed to which all involved parties will agree?
- (3) Will better methods be devised to provide fuel economy information to the consumer?

To respond to those concerns, we met with various headquarters officials in EPA's Office of Mobile Source Air Pollution Control; DOE's Office of Conservation, Policy Planning and Analysis and Office of Transportation Programs; NHTSA's Office of Program Evaluation; and FTC's Division of Energy and Product Information to discuss their respective roles in the fuel economy program area. We also visited the staff of the EPA test facility, Ann Arbor, Michigan, to obtain a better understanding of how fuel economy tests are performed; met with officials from the Ford Motor Company, General Motors Corporation, and Chrysler Corporation to discuss, among other things, their current and future plans to collect and disseminate on-road fuel economy information; and met with the director of the Center for Auto Safety, a public interest group, to obtain information on consumer complaints about fuel economy.

In addition to those discussions, we used a number of EPA, DOT, and DOE studies and surveys describing fuel economy problems and consumer skepticism and confusion to develop the background for our review and to identify causes of the discrepancies between EPA's fuel economy ratings and the reported on-road performance. Many of the studies and surveys used are contained in a September 1980 EPA report conducted for the Congress entitled "Passenger Car Fuel Economy: EPA And The Road." Further, we reviewed the planned options that EPA presented in the Federal Register to address the fuel economy problem areas and discussed those plans with the respective agency officials and the three automobile manufacturers visited.

We reviewed congressional hearings and testimonies that detailed the major causes of the current discrepancies between the EPA ratings and on-road performance. We also compared recent studies from EPA, Ford, and General Motors that indicate how technologies such as front-wheel drive may affect fuel economy discrepancies.

By combining the information obtained through our oral discussions with that obtained from the various reports, surveys, hearings, and testimonies, we believe we have accurately described the past fuel economy program problems and future plans to correct those problems.

Because of the time limits of this review, we did not try to gather any on-road fuel economy data other than that which has already been collected (mainly from DOE and the manufacturers and summarized by EPA). We did, however, discuss with DOT officials their plans to survey during the coming year a large number of automobile owners to obtain such on-road information.

As requested by the House Committee on Energy and Commerce, we did not request official comments from the Federal agencies discussed in this report. We did, however, verify the factual information with agency officials.

We did not include any aspects of the fuel economy standards' compliance program in this review. That program is the subject of another review also being done for the House Committee on Energy and Commerce.

CHAPTER 2

THE FUEL ECONOMY LABELING PROGRAM HAS

ENCOUNTERED SIGNIFICANT OBSTACLES

The fuel economy labeling program has been aimed at influencing the consumer to buy fuel-efficient vehicles as a means to conserve future energy resources. In meeting its objective, however, the program has encountered significant obstacles that have resulted in a discrepancy between the on-road fuel economy reported by the consumer (for combined city/highway driving) and EPA's tested city/highway fuel economy. The magnitude of this discrepancy, frequently referred to as "shortfall," was reported by EPA to vary from 12 percent (2 mpg) in 1975 to 20 percent (3.6 mpg) in 1977. Although the shortfall reportedly decreased somewhat in 1979, it was still at 16 percent (3.2 mpg).

When the Congress passed the Motor Vehicle Information and Cost Savings Act Amendment in 1975, available data suggested that consumers were not, on the average, achieving the EPA city/highway test results in actual use. In 1978, the Congress expressed concern over the matter and required EPA to conduct a detailed study to identify the causes for the shortfalls. The EPA study, subsequently issued in September 1980, provided a wide array of reasons for the discrepancies. Further, the study showed that shortfalls had continued to be significant and that they were critically eroding the credibility of the entire program. In addition, projected fuel savings that had not recognized the increasing shortfall were reported to be overstated.

That a shortfall exists is clear; that consumers are unhappy with this discrepancy is evidenced by survey results. Beyond these two facts, however, it becomes a complex matter to describe the many variables that reportedly cause this shortfall. The variables include such things as travel environment, driver habits, and vehicle conditions and design changes. Further compounding the matter is the fact that FTC does not prohibit automobile advertisers from using fuel economy values in addition to those used on the label and in the Gas Mileage Guide. Together, these factors can be viewed as obstacles that prevent the fuel economy program from becoming more accurate and less confusing to the consumer.

DIFFERENCES BETWEEN EPA TEST RESULTS AND REPORTED ON-ROAD FUEL ECONOMY ARE SUB- STANTIAL AND HAVE VARYING CAUSES

Current studies summarized in EPA's September 1980 report confirm that, when consumers' on-road (city/highway) fuel economy is compared with EPA's city, highway, or combined fuel economy, differences continued to be substantial each year. The report shows that, since 1976, all reported on-road fuel economy figures have been less than EPA's fuel economy label and Gas

Mileage Guide values. For the 1976-78 model years the EPA report shows a 7- to 8-percent shortfall in its city test results, a 34-percent shortfall in its highway test results, and a 19- to 20-percent shortfall in its combined city/highway test results. The EPA report also shows that the respective shortfalls had decreased by about 3 percent in 1979 but only limited data was available to make that determination.

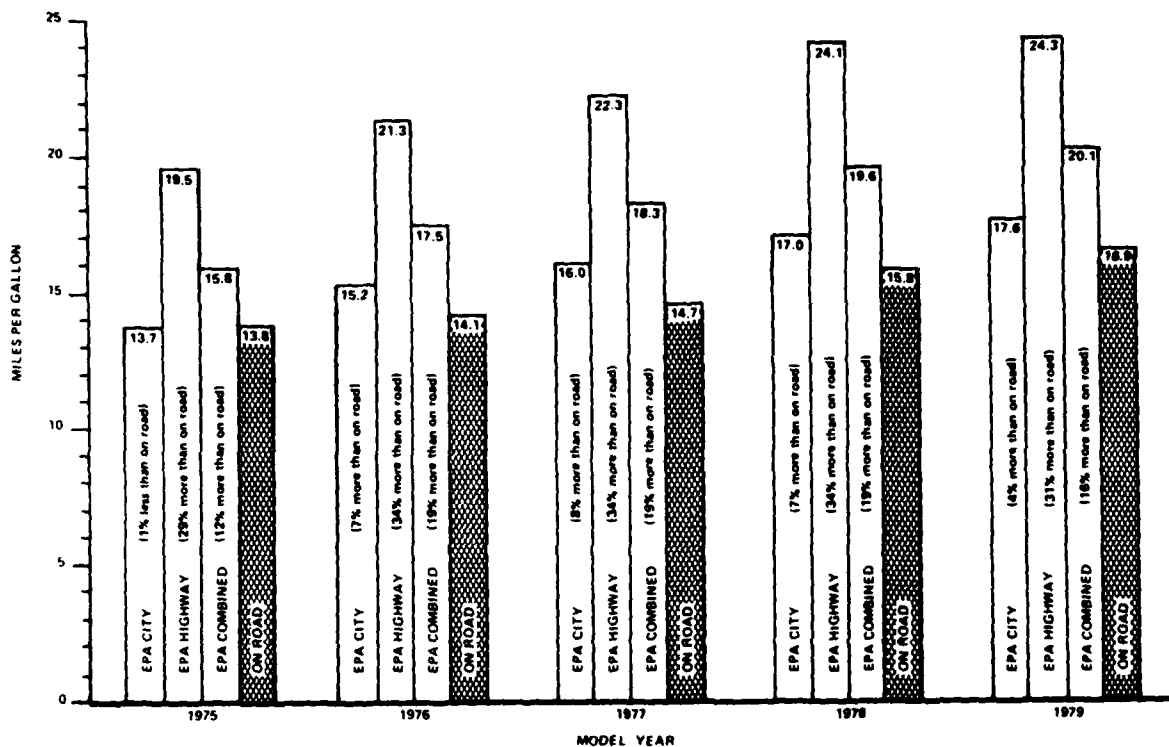
Concern over these fuel economy program discrepancies caused the Chairman of the Subcommittee on Environment, Energy, and Natural Resources, House Committee on Government Operations, in January 1980 to state:

"The hard-won legislation in 1975 imposing fuel efficiency standards upon new automobiles will be seriously impacted unless the Government's testing program accurately gages the actual performance of new cars. Yet at present, the mileage gap between EPA test results and real world miles per gallon has increased, on average, from approximately 5 percent in 1975 to the present 20 percent, with some small cars experiencing a 30-percent mileage shortfall."

Further concern is raised when projected national fuel savings are discussed. EPA reports indicate that the fuel economy program in 1979 should have resulted in a fuel savings of 7.4 billion gallons. However, because of the shortfall, EPA projected that the savings was only about 5.4 billion gallons.

Closer scrutiny of the mpg figures reveals some unique patterns between the EPA-tested mileage and the reported on-road fuel economy. The EPA city mpg, for example, continually comes closer to meeting the reported on-road mileage than does the EPA highway or the EPA combined (city/highway) mpg. The bar graph on the following page, which uses data from the 1980 EPA report, illustrates this point. The most representative comparisons, however, should be made between the EPA combined mpg and the on-road mpg, as the latter also represents city/highway driving.

COMPARISONS: EPA VERSUS ON ROAD
MILES PER GALLON



Recognizing that varying shortfalls occur between EPA-tested and on-road fuel economy, it is important to look at why they occur. Following is an explanation of many of the factors that account for the variances. These factors include travel environment, driver habits, vehicle condition, and prototype to production vehicle changes.

Travel environment

The travel environment simulated by the EPA test described in chapter 1 is one that gives close to the best fuel economy of all possible environments. When taken out of this ideal situation and put into the "real world," a loss in fuel economy is most likely to occur. Characteristics of the travel environment that notably cause a difference between EPA tests and on-road mileage are weather (ambient temperature and altitude) and wind and road conditions (surface quality and grades).

A vehicle's fuel economy can be affected by 1 to 1.5 percent for each 10 degrees Fahrenheit change in temperature, with smaller, more fuel-efficient automobiles suffering higher percentage losses than larger, less fuel-efficient ones. A vehicle's fuel economy can also be affected by altitude changes, although the extent of such change is not without some controversy. The 1980 EPA report states that high altitude tests conducted at 5,500 feet elevation result in a 4-percent fuel economy gain when the vehicle travels at 30 miles per hour and a 1-percent loss when the vehicle travels at 60 miles per hour.

Fuel economy losses caused by wind conditions depend largely on vehicle speed, size, and shape. While the EPA fuel economy test simulates a "zero wind" environment, DOT estimates wind-related shortfalls to be 2 to 3 percent.

There is significant disagreement on the magnitude of fuel economy losses caused by less-than-ideal road surfaces. However, considering all the various road surfaces--dry (concrete, cracks, broken asphalt, loose gravel, sand, and earth), wet, or snow-covered--EPA estimates that road surfaces can cause a potential 4-percent shortfall. Further, although EPA's fuel economy tests exclude road grade simulation, EPA research estimates that the nationwide effect of road grades is a 2-percent shortfall.

Driver habits

No less variable and no more predictable than the travel environment are those factors over which the driver has partial or total control. While somewhat dependent on trip lengths and traffic patterns, a vehicle's stopping frequency, speed, and acceleration are largely matters of driver style. Nevertheless, they have pronounced mpg effects. Short trips, generally involving higher stopping frequency and lower average speeds, are influenced significantly by warmup effects. Longer trips, generally faster and smoother, are less influenced by warmups. A "cold" engine car loses as much as 15-percent mpg when compared with a "warm" engine. It is important to note that the EPA fuel economy test procedure explained in chapter 1 requires a warmup period for its highway test and for the latter part of its city test, thereby taking advantage of this factor.

Traveling at high speeds--70 versus 55 miles per hour, cruise--can, as estimated by EPA, account for as much as 25-percent fuel economy loss. Likewise, low speed travel--20 versus 27 miles per hour, stop and go--can account for a 15-percent loss. Further, according to EPA's data, the shortfall caused by "hard" versus "easy" acceleration can cause a 20-percent fuel economy loss.

Vehicle condition

According to the 1980 EPA report, engines out of tune with manufacturers' specifications suffer shortfalls when compared with EPA's tuned test vehicles. A 1976 Society of Automotive Engineers paper and a 1978 EPA study suggest that carburetor and spark system problems cause the most significant mpg losses.

Other vehicle conditions that have little or no effect on dynamometer test mpg but that do affect on-road mpg include increased vehicle weight loads, wheel condition, tire size and pressure, and lubricants. When consumers use vehicles to carry or pull additional (nonpassenger) weight loads, on-road shortfalls are increased. For example, carrying 50 pounds of tools or sporting equipment can cause an average mpg loss of approximately 0.5 percent. Also, according to the 1980 EPA report, the estimated mpg shortfall for towing trailers can be from 19.5 to 32.5 percent.

Concerning the effect that vehicle wheel condition has on fuel economy, a 1978 DOT report concludes that approximately 10 percent of all on-road vehicles are operating with a 4-percent mpg shortfall due to front-wheel misalignment. Concerning the effects of tire size, an independent study done for EPA by Torres and Burgeson of more than 30 types and sizes of tires showed that tires that fit 15-inch wheels as opposed to 14-inch wheels can obtain a 3.6- to 4.7-percent gain in fuel economy. Underinflated tires can also affect on-road fuel economy. An extensive survey presented in a February 1978 Society of Automotive Engineers' paper revealed that many tires are underinflated by as much as 15 pounds per square inch below manufacturers' recommendations. According to the 1980 EPA study, inflating tires to match or exceed recommended levels can improve fuel economy by 5.3 percent.

Lubricants can also affect fuel economy. A vehicle owner can cause a shortfall by replacing the original lubricant (oil) with a less fuel-efficient oil. In December 1978, the Coordinating Research Council under NHTSA and U.S. Army sponsorship reported that a lighter, more refined oil could improve fuel economy by 1 to 3 percent.

Prototype to production vehicle changes

Since test vehicles are selected nearly a year before the new models are introduced, EPA's fuel economy certification test is conducted on a prototype automobile. There is a difference, however, in the fuel economy value of a production vehicle taken off the assembly line and a prototype vehicle used by EPA to establish the mpg for the labeling and the Gas Mileage Guide when both are tested with the same dynamometer procedure.

One major contributing factor in the prototype to production difference is that manufacturers are allowed to "hand-build"

prototypes to specifically pass EPA's fuel economy tests. EPA also allows manufacturers to make numerous major design changes after prototype vehicles have already been certified by EPA.

Typically, manufacturers request more than 1,000 design changes, referred to as "running changes," during each vehicle model year. According to a January 1980 congressional study, EPA automatically approves about 60 percent of these running changes without further fuel economy testing while some requests are withdrawn after EPA asks for supportive fuel economy information. The 1980 EPA report showed that running changes could account for a prototype to production mpg shortfall of 15 to 25 percent. Sometimes this shortfall is caused by adding production hardware that is not representative of the prototype test vehicle. Additional equipment that adds weight or uses power, such as an air conditioner, decreases fuel economy but is not reflected in EPA's fuel economy ratings unless such equipment is projected to be installed on at least one-third of all vehicles sold within that model.

According to EPA, the combined effect of all the above-listed factors is more than enough to account for the observed fuel economy shortfall. However, other factors may also cause differences between the reported on-road fuel economy and the EPA test results. Those factors are described below.

FUEL ECONOMY LABELING DISCREPANCIES RESULT IN CONSUMER CONFUSION

Ultimately, the consumer is the one affected, and subsequently confused, by the shortfalls in the fuel economy labeling program. Because EPA's test procedures do not require that every vehicle's fuel economy be tested, and because manufacturers can take advantage of the test procedures, a new-car buyer cannot be assured that the attached label reflects the fuel economy of the specific vehicle being purchased. Further, although one of the expressed purposes of the label and Gas Mileage Guide is to give "relative" fuel economy information, concern is growing over the true comparability of EPA's fuel economy figures. Combine that concern with the fact that automobile advertisers may use fuel economy values that go beyond the city mpg values used on the label or in the Gas Mileage Guide (highway mpg values, for example), and consumers continue to express confusion regarding the usefulness of the labeling program.

Label value may not represent a specific vehicle's fuel economy

Consumers cannot be certain that the label appearing on a vehicle accurately reflects that specific vehicle's fuel economy. Because EPA cannot test all possible vehicle combinations manufactured (estimated to be in the tens of thousands), its test

procedures allow manufacturers to assign "general" label values according to model type. ^{1/} EPA calculates each general label value by using an averaging technique which weighs available test results in proportion to manufacturers' projected sales volume for that model type. Although model types represent quite similar vehicle designs, each individual design within that model type may vary from the average. Therefore, an individual vehicle's actual fuel economy, if tested, would likely differ from the general label value assigned. Since consumers buy specific automobiles, not average model types, inherent differences are bound to occur.

Further uncertainty, as discussed by the House Committee on Government Operations in May 1980 (H. Rept. 96-948), can be caused by the automobile industry taking advantage of loopholes and flexibilities in EPA test procedures. Since EPA conducts its tests on prototype vehicles, as discussed earlier in this report, manufacturers can increase fuel economy as much as 5 to 10 percent by fine tuning the vehicles to be tested. In addition, manufacturers may use lubricants that are of better quality than those used in their production cars, or they may use tires that are representative of only a small percentage of production tires. Typically, the tires used are inflated 3 to 4 pounds per square inch more than they would be under actual driving conditions.

In some instances, EPA has made changes to its fuel economy test procedures to close these loopholes. The most noted change involves a change in inertia weight ^{2/} increments. From 1975 through 1979, EPA simulated the weight of its test vehicles in increments of 250 pounds (for vehicles weighing 3,000 pounds or less) and 500 pounds (for vehicles weighing 3,000 to 5,500 pounds). Beginning with the 1980 model year, EPA halved the weight increments to 125 and 250 pounds to prevent manufacturers from manipulating weight classes to their advantage. For example, if a test vehicle's weight was set at 4,749 pounds, under the earlier procedures the vehicle would have been tested at 4,500 pounds--the closest 500-pound increment. This would be a clear advantage because a difference of 100 pounds can mean a 1- to 3-percent change in fuel economy. Under the 1980 change, the vehicle would be tested at 4,750 pounds--the closest 250-pound increment. This change results in a decrease in the fuel economy label and Guide values only in those cases where a vehicle would otherwise have been tested at a lower weight increment.

^{1/}A specific combination of body chassis, basic engine, and transmission class that contains many combinations of engine and transmission calibration, axle ratio, and vehicle weight.

^{2/}The vehicle weight plus a simulated passenger load factor.

In 1979 the General Motors Corporation and the Ford Motor Company petitioned EPA on this change, arguing that it had caused their measured fuel economy averages to be 0.6 mpg lower than the averages potentially attainable under the earlier test procedures. The EPA Administrator denied those petitions and the case is now being reviewed by the United States Court of Appeals.

Label values may not be comparable

Concern is growing that the fuel economy label and the Gas Mileage Guide can no longer be used by consumers for "comparative" shopping since certain types of vehicles appear to react differently to the EPA tests. Based on a study using 1980 model cars, General Motors concluded that diesel engines, manual transmissions, and front-wheel drive vehicles have a smaller shortfall between on-road fuel economy and the EPA ratings than do rear-wheel drive, gasoline engines with automatic transmissions. Ford Motor Company reports that its turbocharged cars average 8 percent below the EPA combined mpg rating while its conventional-type cars average 14 percent below. Ford also reports that its manual transmissions have a smaller shortfall (10 percent) than do its automatics (17 percent). Supporting these studies is a DOE analysis of alternative technologies that concludes that fuel injection and diesel engines, front-wheel drive, and manual transmissions all exhibit significantly less shortfall than other types.

Consumers are increasingly skeptical of the EPA fuel economy ratings

Although consumers have become increasingly concerned with buying fuel-efficient cars, they are skeptical of EPA's mileage information on the label and in the Gas Mileage Guide. The results of five surveys of consumers' opinions indicate a general credibility problem with the current EPA fuel economy figures. From a DOE survey of 1978-79 car owners, about 60 percent of the respondents who felt the label was not useful believed EPA ratings were either overstated, not accurate, did not reflect real-world driving, or could not be trusted. The attitude of participants in a DOE-sponsored focus group study (discussion groups of 12-15 consumers) also supports this finding. The director for the Center for Auto Safety reported that his office receives some 500 consumer complaints a year concerning fuel economy. DOE and FTC also receive calls and letters from car owners disappointed at not matching the EPA mpg mileage, although the volume of such calls and letters decreased dramatically after EPA eliminated the highway and combined mpg ratings from the Gas Mileage Guide in 1979.

The lack of confidence in EPA figures also results from consumers' negative perception toward automobile advertising. An EPA report states that much of the overoptimism and confusion in the fuel economy labeling program is caused by the fact that the highway mpg value is still being used by manufacturers in their

advertising. Although the highway figure has not been used on the label or in the Gas Mileage Guide since 1979, it is an official Government test result; therefore, the FTC guide does not prohibit its use.

CONCLUSIONS

Since the beginning of the fuel economy labeling program, discrepancies have existed between EPA's tested mpg ratings and the on-road fuel economy reported by consumers. Causes of these discrepancies vary, ranging from weather and road conditions to individual driving habits to use of prototype test vehicles that are not representative of production vehicles. Further, label and Gas Mileage Guide fuel economy values may not represent the fuel economy of specific vehicles being bought by consumers. Instead, the values may represent the test results from a combination of vehicle model types, or they may have been derived from manufacturers' taking advantage of the test procedures by using lubricants and tires that represent only a small percentage of the production market share.

Ultimately, the consumer is the one affected by any fuel economy labeling program discrepancies. Projected fuel savings based on EPA test results are also adversely affected. Recent studies indicate that different vehicle designs, such as front-wheel drive, react differently to the fuel economy tests; therefore, the ratings can no longer be used even for comparative shopping. Also, automobile advertising is allowed to use fuel economy test values in addition to those that appear on the vehicle labels or Gas Mileage Guide, which only adds to consumers' confusion and skepticism.

Action must be taken to resolve the discrepancies between EPA's label and Gas Mileage Guide values and consumers' on-road mileage. EPA, in coordination with other agencies, is currently trying to address much of this problem. (The following chapter details EPA's proposed revisions to the fuel economy labeling program.) However, one of our major concerns, regarding the manufacturers' ability to take advantage of the test procedures, is not being addressed.

RECOMMENDATION TO THE ADMINISTRATOR, EPA

EPA's fuel economy test procedures should restrict automobile manufacturers from using such things as high-quality lubricants or tires if they represent only a small percentage of the production market share. We therefore recommend that the Administrator, EPA, require that tested vehicles use only products comparable to those used on the majority of those vehicles in production.

CHAPTER 3

REVISIONS TO THE FUEL ECONOMY LABELING PROGRAM

MAY ENCOUNTER ADDITIONAL OBSTACLES

The fuel economy labeling program discussed in the preceding chapters has encountered many obstacles in its attempt to provide consumers with accurate fuel economy information. The obstacles are the result of many factors, including varying travel environments, driver habits, and road conditions. EPA is striving to confront those obstacles and has recently proposed revising the program to adjust the fuel economy label values and the Gas Mileage Guide so they more closely show the gas mileage consumers are obtaining on the road.

The proposed revisions appear to us to be steps in the right direction. However, EPA may encounter additional obstacles if the following concerns are not addressed. Successful implementation and acceptance of revisions will require continuing cooperation from all involved Federal agencies, the automotive industry, and the consumer. DOE, DOT, EPA, and the automobile manufacturers will need to ensure that the adjusted label values represent current on-road experience. FTC will need to revise its fuel economy advertising guide to ensure that the adjusted fuel economy label values are used in advertising, and consumers will need to have available the adjusted label and the Gas Mileage Guide values for selecting the most fuel-efficient automobiles. Otherwise, the fuel economy labeling program will not meet its intended objectives.

The proposed revisions, as well as our concerns for the program's future success, are discussed in this chapter.

EPA's PROPOSED IMPROVEMENTS IN THE FUEL ECONOMY LABELING PROGRAM

On September 29, 1980, EPA published in the Federal Register an Advance Notice of Proposed Rulemaking to improve the fuel economy labeling program. This action was partially in response to recommendations made to EPA in May 1980 by the House Committee on Government Operations (H. Rept. 96-948, dated May 13, 1980).

EPA's advance notice proposed, among other things, options for improving the accuracy and usefulness of the fuel economy label values. The notice stipulated that the options were not to be treated exclusively, as a combination of the compatible portions of various options would likely be proposed in EPA's final notice.

One option addressed, among other things, the running changes that are generally apt to take place throughout a vehicle production year and suggested a plan to require periodic relabeling to account for any significant changes that affect

fuel economy. Such periodic relabeling would necessitate that each label value be recalculated at set time intervals during the model year (for example, every 3 or 6 months) to compensate for these fuel economy changes. The relabeling option would improve the accuracy of the label values because, under existing regulations, the values are generally determined at the beginning of the production year and remain in effect throughout an entire model year regardless of running changes.

Another option addressed the effects that vehicle equipment and design variations may have on the label values and suggested a plan that would require specific label calculations to account for each unique combination of optional equipment, vehicle weight, and axle ratio. According to EPA, almost 40 percent of the 1981 model-year vehicles would have had different fuel economy values if this proposed method had been used. As discussed in chapter 2, the existing method combines various design and equipment configurations into one model-type label value instead of separating them into specific label values.

None of the automobile manufacturers responding to the advance notice liked the idea of revising fuel economy label values to reflect periodic or specific design updates. The increased cost associated with tracking such things as running changes, vehicle design variations, and optional equipment was the main reason given for the lack of support. General Motors replied that application of the two options would be extremely burdensome and costly--in some cases in excess of \$80 million. Ford estimated that it could cost approximately \$500,000 annually for it to procure, collate, and affix the new labels needed to implement these options.

Still another option addressed the fuel economy variances resulting from individual driving habits and environments and suggested a plan to apply an adjustment factor to each label value that would account for the average shortfall between EPA's test results and consumers' reported on-road experience. Accordingly, the labels could reflect adjusted city values and adjusted highway values, as EPA and manufacturers state that both values would be beneficial to the public.

At the time of the advance notice, EPA had not determined how it would calculate the fuel economy adjustment factors and stated only that it would "aim at predicting" actual on-road performance. Based on analyses completed since the advance notice, EPA states that the average on-road city fuel economy for gasoline-operated vehicles is approximately 14 percent less than EPA's city estimate and the average on-road highway fuel economy is approximately 25 percent less than EPA's highway estimate. EPA therefore believes it could multiply its city test values by 0.86 and its highway test values by 0.75 to account for the differences between on-road experience and the EPA test results.

The manufacturers' comments we reviewed generally supported the proposed option to adjust the fuel economy label values to make them more closely represent consumers' on-road experience. In addition, they supported having adjusted label values reflect both the city and the highway driving cycle, as the two figures were believed to be of more use to the consumer.

There is some disagreement among manufacturers, however, on how the fuel economy adjustment factors should be calculated. The domestic manufacturers support an industrywide adjustment factor, while the foreign manufacturers support an adjustment factor for each individual manufacturer. Ironically, according to EPA statistics, the domestic manufacturers had greater shortfalls than the foreign manufacturers, which may account for their expressed support for industrywide adjustments. Specific comments are discussed below.

General Motors Corporation

General Motors commented that (1) all manufacturers should use the same adjustment factor, (2) adjustment factors should be developed from on-road data so that the majority of the driving public would achieve the adjusted label value, and (3) specific adjustment factors should be developed for vehicles with specific drivetrains, such as front-wheel versus rear-wheel drive and diesel versus gasoline engines.

General Motors estimated that computer costs to provide shortfall adjustment factors would involve a one-time development cost of \$20,000 plus \$1,300 for each update. General Motors stated that it would continue to work with EPA to develop information for on-road fuel economy.

Ford Motor Company

Ford commented that industrywide adjustment factors should be developed from the most recent on-road data to account for technological improvements in the automobiles. Ford warned, however, that adjustment factors must not result in a fuel economy range that is so broad that it is meaningless. Label values that are adjusted so low that nearly everyone exceeds them may minimize the complaints, stated Ford, but such low values would be a definite disservice to the Nation's effort to save fuel. Likewise, the label values should not be adjusted to a level that can be attained by only a few individuals.

Ford expressed concern over the advertising problems that would surface as a result of the label adjustments. It felt that manufacturers should retain the ability to advertise year-over-year improvements in the unadjusted fuel economy values, rather than the adjusted values, to encourage consumers to buy the newer, more fuel-efficient vehicles. (During the transition period, when consumers could likely be confronted with both unadjusted and adjusted label values, the more fuel-efficient

choice may not be obvious. Therefore, we believe it might be helpful for manufacturers to use both values in their advertising and explain why the adjustments were made. After the transition period, however, only the adjusted label values should be used.)

Chrysler Corporation

Chrysler commented that it fully supported EPA's goal of providing consumers with accurate gas mileage information and it therefore supported the use of industrywide shortfall factors to adjust label values to average on-road levels, if necessary. Chrysler recommended, however, that the adjustment factors be subject to annual review and revision as new on-road data becomes available. Chrysler plans to implement a survey of its 1981 models that could provide some of the needed on-road data.

Honda Motor Company, Ltd.

Honda commented that an adjustment factor could be established and used on the label but warned that, because on-road fuel economy varies extensively, any effort to predict a single adjustment factor could create a great controversy. Honda believes that a single, industrywide adjustment factor will satisfy no one and will simply lower the credibility of the program by not acknowledging that discrepancies exist among manufacturers, vehicle classes, and users.

Volkswagen of America, Inc.

Volkswagen did not state any position for or against the use of adjustment factors but commented that an industrywide fuel economy adjustment factor would not provide fair and equal treatment to all manufacturers. Such factors, according to Volkswagen, would unjustly penalize those manufacturers whose production vehicles adequately match or exceed the EPA-tested fuel economy and would only increase the lack of credibility in the fuel economy figures. Volkswagen also stated that any attempt to provide fuel economy values to simulate "real world" situations could not effectively represent all consumers' driving conditions or habits.

CURRENT ON-ROAD DATA IS ESSENTIAL FOR A REVISED FUEL ECONOMY LABELING PROGRAM

Following the September 1980 publication of the Advance Notice of Proposed Rulemaking and the subsequent analysis of manufacturers' and other responses, EPA drafted a Notice of Proposed Rulemaking to improve the fuel economy labeling program. In its draft notice (which at the time of review had not been issued), EPA recognizes the need to periodically update on-road data to provide the most accurate adjusted label value and proposes to annually inform the industry of any change to its adjustment factors. We believe that an adequate and current on-road data

base is crucial to this proposal. We recognize that any data used for adjustment purposes will be accumulated from prior year models, but we believe it should not be more than 1 to 2 years old.

EPA has no formal on-road data collecting system, although it has started collecting some data from 500 to 1,000 vehicles which it hopes to continue collecting annually. Its present fuel economy data base is composed of information that has been collected by other agencies and manufacturers. DOE, for example, has a data base showing fuel economy for about 25,000 vehicles from 1975-80. Much of DOE's data has been obtained through surveys of new-car buyers. Ford Motor Company has voluntarily collected on-road fuel economy data on about 36,000 employee-leased vehicles since January 1978. General Motors' latest efforts measured the fuel economy of about 5,000 of the 1980 model-year vehicles, and NHTSA is preparing to launch a major effort to collect on-road data for 1977-81 model-year cars and 1978-81 model-year light trucks by circulating a questionnaire to 45,000 vehicle owners. The success of any attempt by EPA to use these data sources for adjusting fuel economy labels to reflect on-road experience depends on the following:

--Is the data sufficient for making accurate adjustments?

--Does the data adequately represent the technological changes of late-model automobiles?

--Will the data be updated annually?

NHTSA's data collection efforts

The objective of NHTSA's on-road fuel economy survey is to collect nationally representative data on the fuel economy of 1977-81 model-year passenger cars and 1978-81 model-year light trucks so that the benefits of the fuel economy efforts can be measured and better fuel-saving projections can be developed. Some 45,000 questionnaires will be mailed to vehicle owners asking them to maintain a simple record of their fuel purchases and associated mileage for a prescribed period of time (pretest surveys asked for 4 weeks or 4 fillups). In order to maximize the response rate, two reminder notices will be used by NHTSA--one to be sent to the vehicle owners 7-10 days after receipt of the questionnaire and one to be sent at the end of the log time. Mailings of the questionnaire will span a 12-month period to account for seasonal effects on fuel economy.

Although this effort is being coordinated with EPA and DOE, we question the usefulness of NHTSA's survey to EPA in adjusting the fuel economy label values for several reasons: namely, the timeliness and adequacy of the data and the lack of any plan to continue data collection.

The Office of Management and Budget (OMB) must approve the survey questionnaire after the final design is performed by a contractor and approved by NHTSA. Based on the initial delay by OMB to approve the survey concept (NHTSA requested approval from OMB in December 1979, but OMB did not give its approval until December 1980), any similar delays will only lengthen the time it takes NHTSA to finalize the questionnaire format.

Even if milestones are met as NHTSA has planned, the overall data will not be completely analyzed until early 1983, although some interim data will be available in 1982. Therefore, EPA cannot expect to obtain the total information for calculating its adjustment factors until the 1984 model year. Our major concern then is whether data on 1977-81 vehicles will be representative of 1984 technologies. As pointed out in DOE's Office of Conservation, Policy, Planning and Analysis response to NHTSA's survey effort, it will do little good to know the fuel economy of a 1978, 15-mpg, rear-wheel drive, V-8, automatic transmission car if that type of vehicle is nonexistent.

Another concern regarding EPA's future need for on-road fuel economy survey information is the fact that NHTSA has no plans to continue gathering data beyond this effort. According to a NHTSA Office of Program Evaluation official, neither funds nor staff will be available.

DOE's data collection efforts

Since 1975 DOE has collected fuel economy information on about 25,000 vehicles (1975-80 model years). This data represents studies conducted by Ford, Amoco, General Motors, EPA, and DOE. Data has been collected from State vehicle fleets, utility fleets, business fleets, oil company test fleets, post-card surveys, and consumer fuel economy records.

Included in this data base is fuel economy information on 12,000 vehicles acquired during DOE's new vehicle owner survey of 1978-80 model-year vehicles. Although the survey represents DOE's major effort in fuel economy data gathering, there is some question as to how it can be used by EPA to adjust label values. The 1980 EPA report pointed out that, among other shortcomings, the DOE survey excluded imported cars, for the most part, from the sample although imports accounted for about 16 percent of the on-road market share at that time.

According to DOE's New Car Fuel Economy Information Program manager, these data collection efforts will terminate in October 1981 because of budget constraints. The one minor effort that will likely continue in DOE involves collecting data from 800 households on all energy consumption, including vehicle fuel economy. This data would be of limited use to EPA because of its small sample size.

EPA's data collection efforts

Historically, EPA has compiled and analyzed on-road data collected by other Federal agencies and the automobile industry. Based on this data, EPA has issued several significant reports on fuel economy. Some of the more recent studies appear to support the growing belief that fuel economy label adjustment factors to correct on-road shortfalls must account for specific changes in vehicle technologies, such as front-wheel drive. Recent DOE, Ford, and General Motors surveys also support this belief but offered no solutions. The Director, Certifications Division, at EPA's test facility in Ann Arbor, Michigan, indicated that more research will be needed before any definite conclusions can be drawn on how changing technologies could affect the adjustment factors. EPA's project manager, Fuel Economy Assessment Office, stated that EPA is relying on DOE, DOT, and/or the manufacturers to generate the needed data but agreed that if these sources do not materialize, there may be no new data to adequately predict the effects of changing technologies.

Manufacturers' data collection efforts

Ford has been voluntarily collecting on-road fuel economy data from its employees since January 1978. Both summer and winter surveys have been taken from a sample of about 36,000 employee-leased vehicles. About 15,000 responses were received annually the first 2 years. During 1980 only 8,000 responses were received, apparently because Ford's economic situation did not permit sending a followup letter to nonrespondents, as had previously been done. This year (1981), Ford made the survey response mandatory rather than voluntary; therefore, the response rate is expected to improve. Even so, the data derived from this survey will be manufacturer-specific, representing only Ford vehicles. As for future data, an official from Ford's environmental research and energy planning office told us that Ford may have to discontinue its annual on-road surveys after 1981 due to budget and staff cuts.

General Motors began collecting on-road data in 1975. Last year, General Motors surveyed the fuel economy experienced by various owners of 1980 model-year vehicles. This survey included all make vehicles, not just General Motors vehicles. According to a General Motors environmental activities staff official, a low response rate (10 percent) from the 53,000 questionnaires mailed occurred because no incentives or followups were used to promote a better response. The staff director said that General Motors has no further plans to continue gathering fuel economy data.

A member of Chrysler's emissions and fuel economy division told us that his company plans to collect data on 4,000 of its 1981 model-year employee-leased vehicles. From the sample size available, Chrysler hopes to have at least 2,000 participating in the program. This fuel economy data will be made available

to EPA but not within the time frame that EPA hopes to follow in its schedule to adjust the 1983 model-year fuel economy labels.

THE SUCCESS OF EPA'S PROPOSED REVISIONS TO
THE FUEL ECONOMY LABELING PROGRAM ALSO
DEPENDS ON OTHER FACTORS

EPA's draft Notice of Proposed Rulemaking addresses, among other things, two other areas we believe to be of major importance to the success of any revisions to the fuel economy labeling program. One area concerns EPA's need to work with FTC to revise the fuel economy advertising guidelines; the other area concerns the need to educate consumers on the uses and limitations of the adjusted label and Gas Mileage Guide. If EPA does not adequately address these areas, we believe the credibility of the program will continue to suffer, as it has done in the past.

EPA's adjusted fuel economy values will
require coordination of advertising
efforts

Since 1979 EPA has administratively determined to include only its city-test results on the fuel economy label and in the Gas Mileage Guide. Under the current FTC advertising guide, manufacturers use the EPA city-test results in their advertising, but they may also use the EPA-highway and combined-test results. This situation has created confusion among consumers who try to relate fuel economy advertising claims to the labels and/or the Gas Mileage Guide.

Under the draft notice, EPA proposes two alternatives to replace the current city-only label and Gas Mileage Guide value. One alternative would continue the one-number system but calls for using an adjusted city/highway value (weighed 55/45 percent) rather than the current, unadjusted city-only value. The other alternative would adopt a two-number system to reflect both an adjusted city value and an adjusted highway value. Regardless of what system is finally selected, we believe it is imperative that FTC do everything within its authority to revise its guide to reflect that system. Otherwise, consumer confusion and disbelief will continue to exist.

EPA expresses concern in its draft notice that manufacturers may wish to advertise only the adjusted city or highway fuel economy values that put their vehicles in the most advantageous light. Further, EPA fears that manufacturers may advertise only their most fuel-efficient vehicles and thus fail to show how such items as optional equipment could result in lower fuel economy. EPA hopes that, once it receives comments on these advertising issues, FTC can develop an appropriate revised guide.

We spoke with an FTC Bureau of Consumer Protection official regarding this matter and were told that FTC will "probably go

along" with EPA's plan to adjust fuel economy values to better represent on-road experience. The FTC official anticipates that, once a decision is reached by EPA on what adjusted value or values to use (city, highway, and/or a combination of the two), she and her staff will recommend that FTC adhere to that decision in its fuel economy advertising guide. When or if this happens, however, revisions to the FTC guide will clearly be necessary if use of any EPA figure is to be prohibited or if a provision is to be adopted requiring that both adjusted city and adjusted highway fuel economy values appear in advertising.

The current FTC guide allows advertisers to use EPA's city, highway, and combined mpg values as well as any non-EPA values calculated by the manufacturers, although EPA provides consumers with only its city mpg values on the labels and in the Gas Mileage Guide. This practice is confusing to the consumer. According to the FTC guide issued in November 1978, there was insufficient information available to FTC at that time for it to conclude that the highway and combined mpg values were so unreliable that they should be prohibited from advertising. Keeping this thought in mind, we believe that after EPA determines the reliability of its proposed adjusted fuel economy values, it should work with FTC to assure that the adjusted values are used in future advertising.

EPA's adjusted fuel economy values will
require consumer education efforts

To avoid further consumer confusion and the possibility of fuel economy labeling improvements being misunderstood, we believe a consumer education effort will have to be undertaken by Federal agencies and/or the automobile industry if adjusted values are implemented in the program. During our review, we asked officials of EPA, DOE, and the manufacturers what they planned to do in this regard. The following responses were provided.

--EPA's project manager of fuel economy assessment told us that, in cooperation with DOE, EPA is planning an overall assessment of the information dissemination system. He had no suggestions, however, as to how the public should be specifically informed of the adjusted label values. An environmental protection specialist at EPA headquarters said that he was not aware of any consumer education effort on the part of EPA. He assumed that DOE would have this responsibility.

--DOE's program manager of the Gas Mileage Guide stated that DOE will only be providing a brief explanation of the fuel economy adjustments in the preface to the Guide. The suggestion to display the Guide in public places such as grocery stores, gas stations, and post offices was offered by DOE's New Car Fuel Economy Information Program manager to give it better distribution and visibility. He added, however, that DOE had no other plans to inform the consumer about the fuel economy adjustments.

--Ford's representative expressed concern that the public would need to be informed on the adjusted label values because fuel economy is now a "hot item." Chrysler's representative for government affairs thought it would be a good idea for Federal agencies to educate the consumer because Chrysler was not in a position to sponsor any consumer information efforts.

Based on these responses, it appears that neither the Federal agencies nor the automobile industry will be adequately responding to consumer education needs. We contend, therefore, that for EPA's adjusted fuel economy label values to be completely understood and used for their intended purposes, the consumer must be informed of the adjustments and their limitations.

CONCLUSIONS

EPA is currently proposing to adjust the fuel economy labeling program so that its label values and the Gas Mileage Guide will better represent actual on-road experience. EPA's proposal, however, may encounter obstacles if implemented. The program's success depends on a number of factors. For example, on-road data must be collected if label adjustments are to represent changing vehicle technologies, yet EPA has not provided a plan for collecting statistically sound on-road data that can be used to adjust the fuel economy label values. Further, advertising must reflect the adjusted label and Gas Mileage Guide values and consumer education efforts are needed if the public is to understand the usefulness and limitations of the adjusted fuel economy label values. Although these areas are vital to the fuel economy labeling program success, they are not, at present, being addressed adequately by EPA and the other involved parties.

RECOMMENDATIONS TO THE ADMINISTRATOR, EPA

We recognize that the fuel economy labeling program needs to be adjusted to better represent consumers' on-road experience, but planned adjustments are not without problems. Assuming that an adjustment program as proposed will take place in the near future, we recommend that the Administrator, EPA, then coordinate with the Secretaries of Energy and Transportation, the automotive industry, and private interest groups to:

- Establish a method for collecting on-road fuel economy data so that future label and Gas Mileage Guide adjustment factors are current and accurate.
- Provide consumers with information on the uses and limitations of the adjusted fuel economy values.

RECOMMENDATION TO THE CHAIRMAN, FTC

We also recommend that the Chairman, FTC, revise the fuel economy advertising guide to include the adjusted fuel economy label and Gas Mileage Guide values, once they are determined by EPA.

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